COLORADO RIVER RECOVERY PROGRAM Project No.: 98b
FY-2006-2007 PROPOSED SCOPE OF WORK

Upper Yampa River northern pike translocation and monitoring

Lead Agency: U. S. Fish and Wildlife Service
Colorado River Fishery Project

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Category
__ Ongoing project
xx Ongoing-revised project
__ Requested project
__ Unsolicited proposal

Expected Funding Source
xx Annual funds
__ Capital Funds
__ Other

I. Title of Proposal: Upper Yampa River northern pike translocation and monitoring

II. Relationship to RIPRAP:

Green River Action Plan: Yampa and Little Snake rivers

III.A.1.b(1)	Remove and translocate northern pike and other sportfishes from Yampa River.
III.A.1.b(2)	Reduce northern pike reproduction in the Yampa River.
III.A.1.d.	Remove smallmouth bass.

III. Study Background/Rationale and Hypotheses

Northern pike *Esox lucius* is an exotic, predatory species that has become established in the Yampa River. Northern pike escaped from Elkhead Reservoir (a reservoir on Elkhead Creek, which is a tributary to the Yampa River near Craig, CO) where they were originally stocked to provide sportfishing. Since escapement, they have established large, reproducing populations in the upper Yampa River (Nesler 1995, Personal communication with John Hawkins, CSU, and Richard Anderson, CDOW). The large populations likely provide a source for continual movement of northern pike into the lower Yampa River and further downstream into the Green River where they coexist with three endangered fishes — Colorado pikeminnow *Ptychocheilus lucius*, razorback sucker *Xyrauchen texanus*, and humpback chub *Gila cypha*. Large portions of the lower Yampa River are designated critical habitat for these species. Northern pike provide a significant predatory risk to these endangered fish, especially juveniles and small adults of Colorado pikeminnow and razorback sucker. Additionally, northern pike present a significant predatory risk to other native species in the basin (e.g., flannelmouth sucker *Catostomus latipinnis* and roundtail chub *G. robusta*) that have been considered for listing under the Endangered Species Act in the past (Martinez 1995; Nesler 1995). Northern pike were identified as presenting a significant risk to the endangered fishes by a majority of upper basin researchers in surveys conducted during the late 1980s (Hawkins and Nesler 1991).

The Recovery Program has established an active program to control nonnative fishes in the main rivers of the upper basin to assist in recovery of the endangered fishes found there. To date, the Recovery Program has initiated nonnative reduction efforts for channel catfish and northern pike in the Yampa and Green rivers, and small cyprinids in the Colorado and Green River drainages. In some cases, such as the Yampa River, northern pike have been removed from the main channel and stocked into off-channel impoundments to provide fishing opportunity for local anglers.

Temporarily reducing the pike population through mechanical means appears to be a viable option for the rivers of the upper basin (Lentsch et al. 1996), although complete eradication is unlikely. A small, non-reproducing population of northern pike in the Gunnison River was reduced with relatively little effort applied at a time when pike were vulnerable (McAda 1997). Initial sampling efforts in the Yampa River suggest that substantial numbers of northern pike can be captured during spring when they enter shallow floodplain habitats for spawning (Nesler 1995; J. Hawkins, personal communication; USFWS unpublished data). Sampling in 2001-2004 yielded a total catch of 2453 northern pike.

The aquatic management plan for the Yampa River includes trapping northern pike in the river and transporting them to ponds in the Yampa Valley that qualify under the Nonnative Stocking Procedures (CDOW 1998). Preliminary efforts in 2001, 2002, 2003, and 2004 showed that large numbers of anglers were attracted to the ponds at Yampa SWA when northern pike were stocked there (personal observations).

Translocation of pike will reduce the numbers of northern pike in the Yampa River to benefit endangered fishes and still provide recreational opportunities for anglers.

IV. Study Goals, Objectives, End Product:

Goal

Improve survival of endangered fish in the Yampa and Green rivers.

Objectives

1. Reduce numbers of adult northern pike in the study reach.
2. Determine population size and structure of northern pike in the study reach and the subsequent changes in the population size and structure after translocation.
3. Monitor movement of northern pike into and out of the study area and within the study area. Movements will be monitored within year, between years and seasonally.
4. Maintain public support for the recovery program by providing off-channel angling opportunity to Yampa Valley anglers with northern pike removed from the Yampa River.
5. Monitor the native fish community in the study area.
6. Monitor smallmouth bass in the study area.

End products: Annual reports due 11/06, 11/07; presentation of results at annual researchers meeting; synthesis report due 5/07.

V. Study area: Upper Yampa River (upstream from Craig, CO); river miles 139.7-177.5

VI. Study Methods/Approach:

The main channel of the Yampa River between Highway 40 Bridge upstream of Hayden, Colorado and the Highway 13 Bridge in Craig, CO will be electrofished using hard-bottom electrofishing boats. The river channel will be electrofished seven times between April and June. The entire study area will be divided into two-mile sections that will be sampled individually. On the first sampling pass, in agreement with CDOW, all northern pike and smallmouth bass will be measured for total length, tagged with Floy tags, and released. On the next six sampling passes all northern pike will be measured for total length, tagged with Floy tags, and transported to a stocking location that is agreed to by all parties according to the Nonnative Stocking Procedures. Until enlargement of Elkhead Reservoir is completed, smallmouth bass will be either removed and euthanized or relocated to area ponds.

During the spring sampling the first three passes will cover the entire study area. During passes four and five, pike concentration areas identified in 2004 and 2005 will be

targeted. These concentration areas will include the backwater at river mile 150 identified in 2004 as an area of pike abundance and in 2005 as an area of pike reproduction. Passes six and seven will again be river wide. The purpose of sampling in this manner is to compare trends of sampling river-wide to sampling targeted concentration areas (passes 4 and 5).

Any native fish captured will be identified to species, and length (TL) and weight will be recorded. All smallmouth bass captured will be tagged with a red Floy tag, will receive a left pelvic fin clip, and will be returned to the river. If approved, smallmouth bass will be removed from the river and euthanized and/or stocked according to CDOW protocol (see supplemental budget). Data will be analyzed to establish a population estimate of northern pike, proportion and size structure of northern pike population that is removed and movement of northern pike. The status of native fish populations will be examined and a smallmouth bass population estimate and movement will be determined in the study reach. Incidental mortalities will be refrigerated (when possible) and turned over to the Colorado Division of Wildlife. The relocation effort of northern pike will be closely coordinated with CDOW personnel.

All capture and length data on northern pike, smallmouth bass, and other species collected during the sampling effort will be turned over to the Colorado Division of Wildlife and added to the Recovery Program database. A brief summary report will be produced after sampling is completed and distributed through the Recovery Program's annual reporting process. In addition, results will be presented at the annual nonnative fish workshop.

To be effective and to maintain public understanding and support, it will be critical to initiate an active and widespread public relations campaign. Public relations will be critical to the success of this project. We will assist the RIP staff, CDOW, and the Yampa Basin Partnership in their I&E efforts on nonnative removal projects.

VII. Task Description and Schedule

1. April through June: Electrofish the main channel of the Yampa River between Hayden and Craig, CO (8 passes). All northern pike captured will be stocked into Loudy-Simpson or Yampa State Wildlife Area ponds (CDOW will transport northern pike if Rio Blanco Lake is used) and bass will be handled as mentioned above.

2. October: Consolidate data and provide to Colorado Division of Wildlife and to Recovery Program database.

3. November 2006 – January 2007: Prepare annual reports. Attend annual researchers meeting.

4. January 2006: Prepare composite synthesis report.

VIII. FY-2006 and FY 2007 Work

Budget: FY2006

Task 1

Preparatory Labor	Cost
GS-11 Biologist ($36.67/hr x 8 hrs/day x 10 days) + ($55.00/hr x 2 hr OT/day x 10 days)	$4,034
GS-8 Fisheries Tech ($28.29/hr x 8 hrs/day x 10 days) + ($42.44/hr x 2 hrs OT/day x 10 days)	$3,112
2 GS-5 Biolgical Techs ($20.56/hr x 8 hrs/day x 10 days) + ($30.84/hr x 2 hrs OT/day x 10 days)	$4,524

Subtotal	$11,669

Field Labor	Cost
GS-11 Biologist ($36.67/hr x 8 hrs/day x 5 days/trip x 8 trips) + ($55.00/hr x 2 hr OT/day x 5 days/trip x 8 trips)	$16,134
GS-8 Fisheries Tech ($28.29/hr x 8 hrs/day x 5 days/trip x 8 trips) + ($2.44/hr x 2 hr ot/day x 5 days/trip x 8 trips)	$12,448
3 GS-6 Biological Techs ($20.56/hr x 8 hrs/day x 5 days/trip x 8 trips) + ($30.84/hr x 2 hr ot/day x 5 days/trip x 8 trips)	$27,140

Subtotal	$55,722

Travel, Per Diem, Equipment	Cost
(3 trucks/trip x 700 mi/truck x $0.405/mi x 8 trips) Vernal to Craig round trip and on the river	$6,804
Boat gas (8 gal gas/boat x $2.50/gal x 3 boats/day x 5 days/trip x 8 trips)	$2,400
Boat oil (2 qts. Oil/boat x $2.75/qt x 3 boats/day x 5 days/trip x 3 trips)	$660
Per diem (5 people/day x $91/person x 5 days/trip x 8 trips)	$18,200
Equipment Repair and Maintenance (nets, motor repairs, fish tags, etc.)	$7,210
One boat motor	$2,575
Four GPS Units ($500/unit x 1 unit/boat x 3 boats + 1 back up unit	$2,000
5.0 GPP Electrofisher, Honda generator, output cables, single foot winch with 15-foot cables	$9,900
Subtotal	$49,749

Tasks 2 and 3

Data summary, Analysis, report preparation, and project presentation	Cost
GS-14 Project Leader ($59.82/hr x 8 hrs/day x 30 days)	$14,357
GS-11 Fisheries Biologist ($36.67/hr x 8 hrs/day x 45 days)	$13,201
GS-9 Admin Assist. ($32.20/hr x 8 hrs/day x 15 days)	$3,864
GS-5 Technicians ($20.56/hr x 8 hrs/day x 20 days)	$3,290
Supplies (Copies, disks, paper, etc.)	$513
Per diem (1 person/day x $101/person x 2 days/trip x 2 trips)	$404
Travel to give presentations and workshops and meetings (1 truck/trip x 275 mi/truck x $0.405/mi x 2 trips)	$223

Subtotal	$35,852

Total	$152,992

Supplemental Budget for Smallmouth bass removal	Cost
GS-5 Biolgical Techs ($20.56/hr x 8 hrs/day * 40 days) + ($30.84/hr x 2 hrs OT/day x 40 days)	$9,046
(1 trucks/trip x 235 mi/truck x $0.405/mi x 8 trips) Vernal to Craig round trip and on the river	$761
Per diem (1 person/day x $91/person x 5 days/trip x 8 trips)	$3,640

Total	$13,447

Budget: FY2007

Task Activity	Cost

Task 1

Preparatory Labor	Cost
GS-11 Biologist ($37.77/hr x 8 hrs/day x 10 days) + ($56.65/hr x 2 hr OT/day x 10 days)	$4,155
GS-8 Fisheries Tech ($29.14/hr x 8 hrs/day x 10 days) + ($43.71/hr x 2 hrs OT/day x 10 days)	$3,205
2 GS-5 Biolgical Techs ($21.18/hr x 8 hrs/day x 10 days) + ($31.77/hr x 2 hrs OT/day x 10 days)	$4,660

Subtotal	$12,020

Field Labor	Cost
GS-11 Biologist ($37.77/hr x 8 hrs/day x 5 days/trip x 8 trips) + ($56.65/hr x 2 hr OT/day x 5 days/trip x 8 trips)	$16,618
GS-8 Fisheries Tech ($29.14/hr x 8 hrs/day x 5 days/trip x 8 trips) + ($43.71/hr x 2 hr ot/day x 5 days/trip x 8 trips)	$12,822
3 GS-6 Biological Techs ($21.18/hr x 8 hrs/day x 5 days/trip x 8 trips) + ($31.77/hr x 2 hr ot/day x 5 days/trip x 8 trips)	$27,958

Subtotal	$57,398

Travel, Per Diem, Equipment	Cost
(3 trucks/trip x 700 mi/truck x $0.417/mi x 8 trips) Vernal to Craig round trip and on the river	$7,006
Boat gas (8 gal gas/boat x $2.58/gal x 3 boats/day x 5 days/trip x 8 trips)	$2,477
Boat oil (2 qts. Oil/boat x $2.83/qt x 3 boats/day x 5 days/trip x 3 trips)	$679
Per diem (5 people/day x $93.73/person x 5 days/trip x 8 trips)	$18,746
Equipment Repair and Maintenance (nets, motor repairs, fish tags, etc.)	$7,426

One boat motor	$2,652

Subtotal	$38,987

Tasks 2 and 3

Data summary, Analysis, report preparation, project presentation, write synthesis report	Cost
GS-14 Project Leader ($61.61/hr x 8 hrs/day x 40 days)	$19,715
GS-11 Fisheries Biologist ($37.77/hr x 8 hrs/day x 50 days)	$15,108
GS-9 Admin Assist. ($33.17/hr x 8 hrs/day x 15 days)	$3,980
GS-5 Technicians ($21.18/hr x 8 hrs/day x 20 days)	$3,389
Supplies (Copies, disks, paper, etc.)	$528
Per diem (1 person/day x $101/person x 2 days/trip x 2 trips)	$416
Travel to give presentations and workshops and meetings (1 truck/trip x 275 mi/truck x $0.405/mi x 2 trips)	$230

Subtotal	$43,366

Total	$151,770

Supplemental Budget for Smallmouth bass removal	Cost
GS-5 Biolgical Techs ($21.18/hr x 8 hrs/day * 40 days) + ($31.77/hr x 2 hrs OT/day x 40 days)	$9,320
(1 trucks/trip x 235 mi/truck x $0.405/mi x 8 trips) Vernal to Craig round trip and on the river	$784
Per diem (1 person/day x $93.73/person x 5 days/trip x 8 trips)	$3,749

Total	$13,853

Deliverables/Due Dates: Annual report 11/06, 11/07
Synthesis Report 5/07

IX. Budget Summary

FY-2006 $152,992
FY-2007 $151,770

X. Reviewer
Dave Irving U.S. Fish and Wildlife Service

XI. References

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